

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

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BEFORE THE

TACTICAL AIR AND LAND FORCES SUBCOMMITTEE

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

FY 2006 MARINE CORPS MAJOR ROTORCRAFT PROGRAMS

APRIL 14, 2005

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Mr. Chairman, distinguished members of the Subcommittee, thank you for this opportunity to appear before you to discuss USMC major rotorcraft programs.

The Fiscal Year 2006 Budget request maximizes our Nation's return on its investment by providing the resources to responsibly meet today's growing challenges -- from Global War on Terrorism (GWOT) operations to peacekeeping/stability operations and small-scale contingencies -- and by transforming the force for future challenges. The HLR, VXX, and V-22 Programs are an indispensable part of that transformation.

Your Future Navy and Marine Corps Team

We developed the *Sea Power 21* and *Marine Corps Strategy 21* visions in support of our National Security Strategy, the National Military Strategy, and other strategic guidance such as *Joint Vision 2020*. A key objective of *Sea Power 21* and other transformation visions is to ensure this nation can project and sustain credible force and influence on scene to promote regional stability, deter aggression throughout the world, assure access of Joint forces, and to fight and win should deterrence fail. *Sea Power 21* and *Marine Corps Strategy 21* guide the Navy's transformation from a threat-based, platform-centric structure to a capabilities-based, fully integrated force. The HLR Program is in direct support of the Sea Basing pillar of our visions; in fact, we cannot fully exploit Sea Basing without the heavy lift capabilities of the HLR program. The VXX is most appropriately placed in the Sea Strike pillar recognizing the strategic nature of Presidential command and control platforms. The MV-22 is cross-pillared between Sea Strike and Sea Basing, providing revolutionary, vertical/short takeoff and landing tiltrotor capability in direct support to expeditionary assault, raid operations, medium cargo lift, tactical recovery of aircraft and personnel, fleet logistics, and special warfare missions.

The Navy and Marine Corps Team of the future must be capabilities-based. Through agility and persistence, our Navy and Marine Corps Team will be poised for the "close-in knife fight" that is the GWOT, able to act immediately and decisively on a fleeting target. To do so, it must be properly postured in terms of operational availability and agility from platforms that are much more capable as a distributed, networked force. Because the sea can provide ready access to many of the world's potential areas of action, the Navy and Marine Corps are focusing significant effort on joint combat power projection that leverages the littoral maneuver space of the oceans through Sea Basing. Sea Basing is a national capability and U.S. asymmetric advantage that will project and sustain national military power when needed, assuring joint access to operational areas of choice by leveraging the operational maneuver of distributed and fully networked U.S. forces operating from the sea, while accelerating expeditionary deployment timelines. The Sea Based Navy will be distributed, netted, immediately employable and rapidly deployable, greatly increasing its operational availability.

The Fiscal Year 2006 Budget request reflects the investments that will most improve this warfighting capability by developing and investing in future Sea Based and expeditionary capabilities for the Navy and Marine Corps.

AVIATION PROGRAMS

The Fiscal Year 2006 President's Budget request balances continued recapitalization for new capabilities and reduced operating costs while simultaneously sustaining the legacy aircraft that are performing magnificently in current operations. The Department's Fiscal Year 2006 Budget request supports initiation of the development of an HLR helicopter, and continues funding the System Development and Demonstration (SDD) phase for VXX. Moreover, the Fiscal Year 2006 Budget continues to fund the procurement of the V-22 aircraft at the minimum sustaining rate of 11 per year (Nine MV-22s and two CV-22s in FY06).

USMC Heavy Lift Replacement (HLR) Program

The Fiscal Year 2006 Budget requests \$272 million of Research, Development, Test and Evaluation (RDT&E) funds to begin the HLR development effort that will replace the aging fleet of the current U.S. Marine Corps' heavy-lift aviation platform, the CH-53E "Super Stallion." The Marine Corps' CH-53E, first fielded in 1981, continues to demonstrate its value as an expeditionary heavy-lift platform, with significant assault support contributions in Afghanistan, the Horn of Africa and Iraq. Vertical heavy lift capability will continue to be critical to successful global operations in anti-access, area-denial environments, enabling the joint concepts of Force Application and Focused Logistics within *Joint Vision 2020*.

To keep Fleet Marine Forces operationally effective through the 2025 timeframe, the Marine Corps must develop a more capable, survivable and affordable platform. The CH-53E cannot support our future operational concepts of Sea Basing and Ship to Objective Maneuver (STOM). Based on a balanced assessment of technical maturity and risk, as well as cost, performance, and schedule considerations, an independent *USMC Vertical Heavy-Lift Mission Analysis of Alternatives* (AoA) determined that a new-build, CH-53 derivative helicopter would be the most effective HLR solution.

The CH-53E requires significant enhancements to meet future interoperability requirements, improve survivability and force protection, expand range and payload performance, improve cargo handling and turn-around capabilities, and reduce Operations and Support (O&S) costs. A Service Life Assessment completed in 1999 identified a CH-53E fatigue life limit of 6120 airframe hours, which initial CH-53E platforms will achieve in FY12. While it is possible to execute short-term solutions, they will not arrest the continuing O&S cost acceleration and the ever-increasing maintenance burden on an aircraft that is 24 years old. In addition, due to the abnormally high GWOT operational tempo, the CH-53E fleet is expending service life at a much faster rate than planned.

Comprehensive studies conducted by HQMC provide the quantitative analytical basis for increased range, payload and availability to enable Expeditionary Maneuver Warfare concepts of Operational Maneuver From the Sea (OMFTS), Sea Basing, and STOM. Further analysis of the CH-53E fleet demonstrates the requirement for reduced logistics footprint, improved aircraft availability, improved survivability, and vastly improved reliability, maintainability, and total ownership costs. The HLR will mark a significant increase in operational capability over that of the CH-53E in terms of lift and range, in high altitude/hot temperature operations, and will

improve aircraft and aircrew/passenger survivability, aircraft reliability, and significantly reduce O&S costs.

Requirements for the HLR were developed in consonance with STOM concepts from Expeditionary Maneuver Warfare in *Marine Corps Strategy 21*; the Naval concept of Sea Basing in *Sea Power 21*; and with lessons learned from recent operational experience. The Joint Requirements Oversight Council (JROC) approved the Operational Requirements Document (ORD) that defines the necessary HLR capabilities in December 2004. We intend to achieve Initial Operating Capability (IOC) with the HLR, a heavy-lift helicopter with vastly enhanced performance capability and reliability in 2015, an IOC that is fiscally constrained. Vertical heavy lift will be critical to enabling joint operating concepts and the Naval concepts of Expeditionary Maneuver Warfare and Sea Basing.

The AoA recommends the HLR be a derivative design of the CH-53E, capitalizing on the technical baseline and operational maturity of the CH-53E. The HLR will fill the marinized, vertical heavy-lift requirement not resident in any other current platform, which is necessary for successful Sea Basing and joint operations. With increased range and payload performance under most environmental conditions, commanders will have the option to insert a force equipped with armored combat vehicles or two armored High Mobility Multi-Wheeled Vehicles (HMMWVs) per sortie. To sustain the force, the HLR will be able to transport three independent loads tailored to individual receiving units during distributed operations, and provide the critical logistics air connector to facilitate Focused Logistics to the end unit. This reliable, cost-effective heavy-lift capability will address critical challenges in maintainability, reliability, and affordability found in present-day operations supporting the GWOT.

In order to meet the ORD requirements, it is anticipated that key components of the HLR program will include: a new maintainer-friendly fuselage, engines and cockpit common to other DoD aircraft, state-of-the-art dynamic components, greatly improved cargo-handling capability, current Aircraft Survivability Equipment (ASE) and defensive armament systems, Joint-compliant information exchange data systems, reduced cost per flight hour and maintenance requirements, and improved aircraft availability. The HLR will be the most capable, marinized, heavy-lift helicopter in the world.

With regard to the Joint Heavy Lift Requirement, the Marine Corps has been engaged from the outset with the Joint Vertical Aircraft Task Force and the ensuing emphasis on joint heavy lift missions. While the Marine Corps has signed up for and is interested in the Joint Heavy Lift Concept Refinement Phase, it currently has no validated requirement for an aircraft of the size and capability conceived, except to say that the Joint Heavy Lift platform would need to be capable of landing aboard ship.

Presidential Helicopter Replacement Program (VXX)

The Fiscal Year 2006 Budget requests \$936 million of RDT&E funds for SDD efforts on the VXX program. The goal of this accelerated program is a seamless transition to the next generation of Presidential helicopter support enabling the secure and timely transportation of the President and Vice President of the United States. The VXX program will use an evolutionary acquisition approach through a two-part incremental development to deliver a secure, survivable

and capable vertical lift aircraft while providing uninterrupted communications with all required agencies.

The Department completed a Milestone B/C Defense Acquisition Board on January 13, 2005, and the VXX program received authorization to begin the SDD phase and to develop Increment 1 and 2 configurations concurrently. After a thorough source selection evaluation, compliant with all Federal Acquisition Regulations and all appropriate statutes, on January 28, 2005, a SDD contract was awarded to Lockheed Martin Systems Integration-Owego (LMSI-O) to introduce a new Presidential helicopter into initial service by October 2009.

The VXX will replace the aging legacy fleet of eleven VH-3D and eight VH-60N helicopters currently flown by Marine Helicopter Squadron One (HMX-1) to conduct the Presidential lift mission. The VH-3D and VH-60N performance limitations are inadequate to support the White House Military Office (WHMO) Operational Plan contingency and administrative missions. The need for the replacement helicopter was validated through a Mission Needs Statement (MNS) signed on September 16, 1999, which identified the capability and performance limitations of the VH-3D and VH-60N in meeting the WHMO mission requirements. The MNS also highlighted the current aircrafts inability to meet mission growth requirements, and service life and obsolescence issues. The VXX will meet the needs of the MNS by providing a significant increase in operational capability to HMX-1 and the WHMO in terms of range, airspeed, high/hot temperature operations, passenger lift capability, survivability, mission growth capability, and Senior Leader Communications.

An independent AoA study was conducted in two phases to investigate design options for the VXX aircraft and was completed in July 2003. Phase one of the AoA considered 26 different aircraft and phase two narrowed the potential solutions down to three designs. Furthermore, a Broad Agency Announcement (BAA) was released on January 27, 2003, for a full and open competition to solicit concept design studies for VXX. Concept design study contracts were awarded under the BAA to LMSI-O, Sikorsky Aircraft Corporation (SAC) and the Bell-Boeing Tiltrotor Team. The LMSI-O and SAC contracts were modified and extended to allow additional design studies and risk reduction efforts.

When the President is aboard Marine One, the helicopter is the Nation's primary command and control platform. The VXX Program was accelerated as a result of the White House Chief of Staff to SECDEF memorandum dated November 26, 2002. This memo expressed the need for an accelerated replacement schedule for the VH-3D due to the post 9-11 national security environment. The VXX ORD was approved by the JROC on December 16, 2003. Based on current aircraft age and fatigue life limits, the decision to also replace the VH-60N aircraft with the VXX was validated by the JROC and endorsed by the WHMO. The IOC date was established as October 2009. IOC will be achieved upon delivery of four Increment 1 (Pilot Production) aircraft. Full Operational Capability is projected for Fiscal Year 2015, once all the Increment 2 aircraft have been delivered. The total VXX procurement quantity is 26 aircraft (23 operational, three test article).

Following SDD contract award, the Navy/LMSI-O VXX team integrated their program efforts, initiated detailed design, development and production activities, initiated activities in preparation for the program's July 2005 Integrated Baseline Review, and have just conducted the initial

System Requirements Review (SRR) leading to the formal SRR/System Functional Review in May 2005. The Increment 1 Preliminary Design Review is scheduled for July 2005, and the Increment 1 Critical Design Review is scheduled for October 2005.

V-22 Osprey

The Fiscal Year 2006 budget requests \$1.3 billion of procurement funding for 9 MV-22s, trainer modifications and retrofits and \$206 million of RDT&E for continued development, testing and evaluation. The V-22 Program will procure a total of 11 V-22s in Fiscal Year 2006; 9 MV-22s and 2 Air Force funded CV-22s. The Future Years' Defense Program (FYDP) reflects a program total of \$12.9 billion for the V-22 Osprey. V-22 aircraft quantities were reduced by a total of 35 aircraft in Fiscal Year 2006 to 2009 since President's Budget-2005. Thirteen aircraft were deferred to fund increased capabilities and cost reduction initiatives, and an additional 22 aircraft were moved for near term affordability and budget constraints.

The V-22 Program remains on track for a MS-III/Full Rate Production (FRP) decision this fall, and has been cleared to enter Operational Evaluation (OPEVAL) by the Program Executive Officer. Certification to proceed to OPEVAL indicates that the V-22 Weapon System has been judged by the Defense Acquisition Executive's representative to be ready for DOT&E to evaluate Effectiveness and Suitability in accordance with the Test and Evaluation Master Plan. It also indicates that the V-22 Block A redesign has produced a safe and supportable aircraft, and that all Blue Ribbon Panel and independent review team recommendations have been sufficiently addressed. OPEVAL results and DOT&E's Beyond Low Rate Initial Production (LRIP) Report will provide an assessment of readiness for a Milestone III Full Rate Production decision. The V-22 Program has flown over 5,300 hours, including developmental flight test, operational flight test and aircrew training since return to flight in 2002.

Developmental flight test to support OPEVAL was completed in January 2005. Commander, Operational Test and Evaluation Force (COMOPTEVFOR) approved USMC MV-22 Operational Test Squadron (VMX-22) at MCAS New River, North Carolina to commence OPEVAL on March 28, 2005. Further, development efforts in support of CV-22 (USAF) IOT&E (Initial Operational Test and Evaluation) continue both at Patuxent River, Maryland and Edwards AFB, California. IOT&E is scheduled to commence in the Fall of 2006.

Additionally, on February 18, 2005, COMOPTEVFOR submitted an independent Letter of Observation stating that the V-22 was in compliance with Section 123 requirements. This letter is in staffing to USD (AT&L) via ASN(RDA). Section 123 of the 2002 Defense Authorization Act restricted the V-22 production rate to the manufacturer's minimum sustaining rate, defined as eleven aircraft. The following four criteria, as outlined in Section 123 language, have been complied with:

- The V-22 hydraulic system was redesigned to prevent chafing. Additionally, the flight control software was revised to resolve deficiencies seen in earlier aircraft incidents. As demonstrated in over 5,300 flight hours since Return To Flight, these steps have resolved previous deficiencies – no recurrences have been observed.

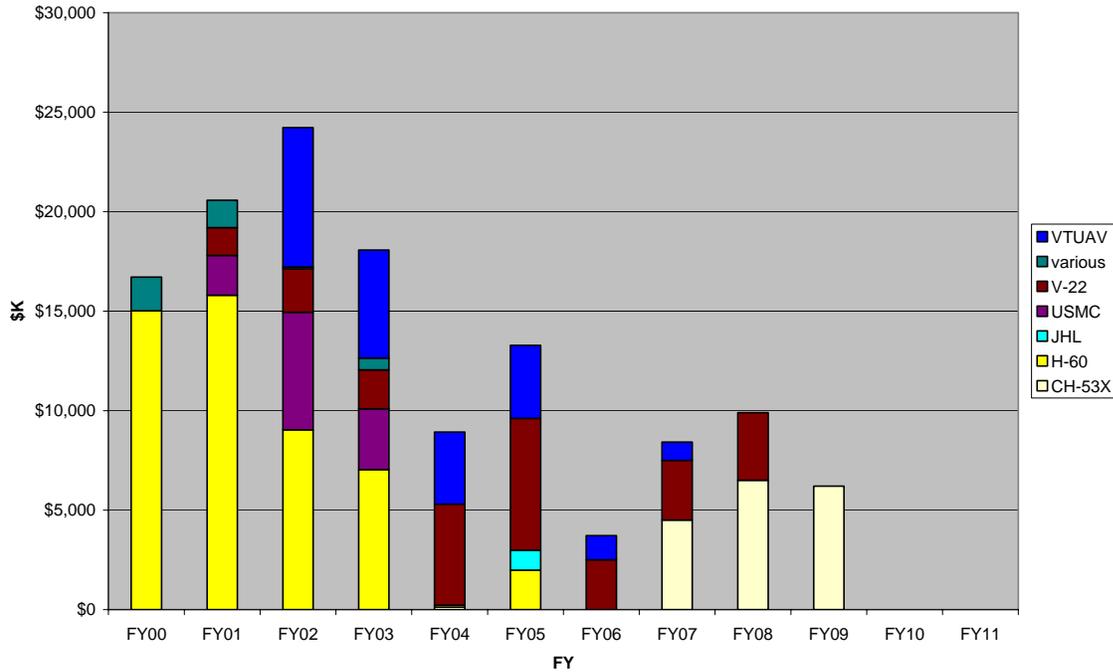
- The reliability and maintainability of the V-22 has been (and continues to be) improved by analyzing failures, determining root causes and designing and implementing corrective actions. These remedial actions include changes to software, hardware and manufacturing processes.
- After incorporation of improvements to the V-22 Flight Control software, both Development and Operational testing was successfully conducted to insure that the MV-22 could operate with other Ospreys and other types of aircraft. This testing was conducted aboard ship as well as ashore. The V-22 Operational Test squadron (VMX-22) routinely conducts multi-plane formation flights – including aerial refueling.
- VMX-22 has assessed and documented that the V-22 downwash effects do not pose operational constraints. They have logged over 7,500 landings including landings in austere and shipboard environments without incident. These flights included personnel working beneath the aircraft during external load operations. Based on these operations, V-22 downwash does not inhibit ground operations and personnel are able to work safely and effectively beneath a hovering V-22 aircraft.

ROTORCRAFT SCIENCE AND TECHNOLOGY FUNDING

A summary of platform-specific rotorcraft naval science and technology (S&T) investments for Fiscal Year 2000-2011 follows. Fiscal Year 2005 and prior year totals include congressional adds if rotorcraft platform specific. Fiscal Year 2006 and out reflects the President's budget. No specific rotorcraft platform S&T is programmed for Fiscal Year 2010 and Fiscal Year 2011.

This summary does not include basic research that is not specific to rotorcraft technology, (i.e., computational fluid dynamics) and S&T investments with multiple applications (i.e., Integrated High Performance Turbine Engine Technology (IHPTET) or Versatile Affordable Advanced Turbine Engines (VAATE) efforts).

Major S&T Investments - Rotorcraft



PLAT	FY00	FY01	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11
CH-53X	0	0	0	0	125	0	0	4,500	6,500	6,200	0	0
H-60	15,013	15,799	9,040	7,034	100	1,981	0	0	0	0	0	0
JHL	0	0	0	0	0	999,705	0	0	0	0	0	0
USMC	0	2,000	5,904	3,056	0	0	0	0	0	0	0	0
V-22	0	1399	2184	1954	5077	6626	2500	3000	3400	0	0	0
various	1,700	1,373	100	600	0	0	0	0	0	0	0	0
VTUAV	0	0	7,000	5,428	3,627	3,676	1,220	915	0	0	0	0
total	16,713	20,571	24,228	18,072	8,929	13,283	3,720	8,415	9,900	6,200	0	0

Rotorcraft S&T investment within the Department of Defense is principally by the Army, DARPA, and NASA. The Army is the lead agency for coordination through the Reliance process (under the auspices of Director, Defense Research and Engineering (DDR&E)). Active technology programs are in aeromechanics, flight controls, structures, rotorcraft drives, and subsystems. In addition, there are related Federal and Private Sector efforts that include the nation’s three major helicopter manufacturers and suppliers, and several academic institutions.

COMBAT EXPERIENCE IN IRAQ

Throughout the last year, we have had a very significant portion - approximately 35% - of our Marine Corps rotary wing fleet deployed in support of the GWOT. Our current force deployments include approximately 160 helicopters, the majority of which are operating in Iraq. The exact composition of this force does not remain completely constant, but it is roughly comprised of 65-70 H-1 aircraft, 50-55 CH-46E aircraft, and 30-35 CH-53 aircraft. We have sustained losses during GWOT operations of 21 helicopters, with an additional 21 aircraft damaged to an extent that they required repair outside of the theater of operations; these losses and damaged aircraft have been distributed roughly equally amongst the different types of

helicopters. The losses have been caused by a variety of factors, including small arms fire and shoulder-fired missiles, as well as the hazardous desert flying environment.

Our deployed helicopter fleet is fully outfitted with the latest Aircraft Survivability Equipment (ASE). We were able to outfit the fleet on short notice through a combination of solid prior planning, and proactive measures on the part of budgeting competencies. We have spent approximately \$155 million on Helicopter ASE through a combination of reprogramming, supplemental funding, and unfunded-priorities additions. To date approximately 50 CH-53E, 7 CH-53D, 140 CH-46E, 78 AH-1W, 45 UH-1N, 20 KC-130F/R/T, and 16 KC-130J aircraft have been outfitted with AAR-47(v)2 Missile and Laser Warning systems and ALE-47 Counter Measure Dispenser systems. Additionally, Ballistics Protection Systems, RMWS/GAU-21 guns, ALQ-157A(v)1 Infrared Countermeasures systems, and M240 machine guns are being procured and installed as ASE subsystems on specific type/model/series aircraft.

SUMMARY

Our mission remains bringing the fight to our enemies while continuing to be vigilant and well prepared at home and abroad. The increasing dependence of our world on the seas, coupled with a growing uncertainty of other nations' ability or desire to provide access in a future conflict, will continue to drive the need for agile Naval forces and the capability to project decisive joint power by access through the seas. The increased emphasis on the littorals and the global nature of the terrorist threat will demand the ability to strike where and when required, with the maritime domain serving as the key enabler for U.S. military force.

Accordingly, we will execute the GWOT while transforming for the future fight. We will continue to refine our operational concepts and transform our technology to deliver the dominant military power envisioned in *Sea Power 21*. We will continue to pursue the operational concepts for seabasing persistent combat power, even as we invest in technology and systems to enable Naval vessels to deliver decisive, effects-based combat power in every tactical and operational dimension. We look forward to the future from a strong partnership with Congress that has brought the Navy and Marine Corps Team many successes today. We thank you for your consideration.